Feb. 27, 1945. H. L. THOMPSON 2,370,591

SHEET-RETAINING ATTACHMENTS FOR PLATEN PRESSES

Filed May 6, 1943 2 Sheets-Sheet 1

FIG. 1.

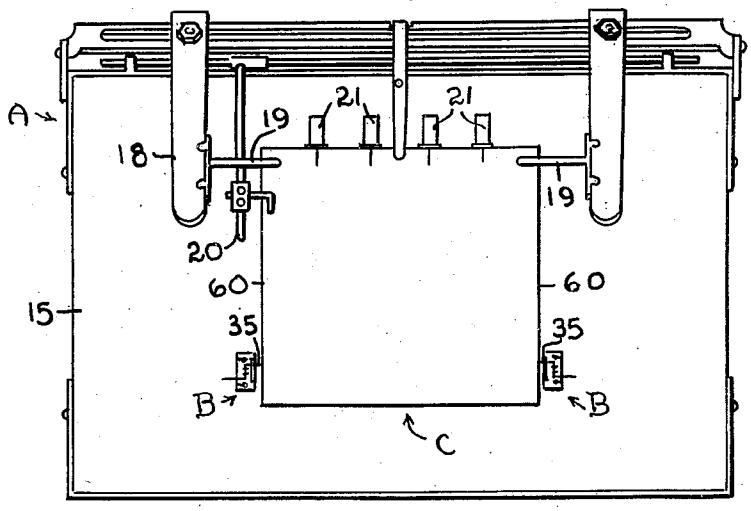


FIG. 2.

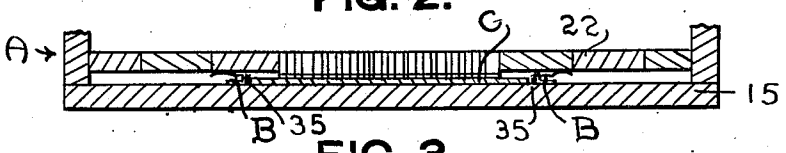


FIG. 3.

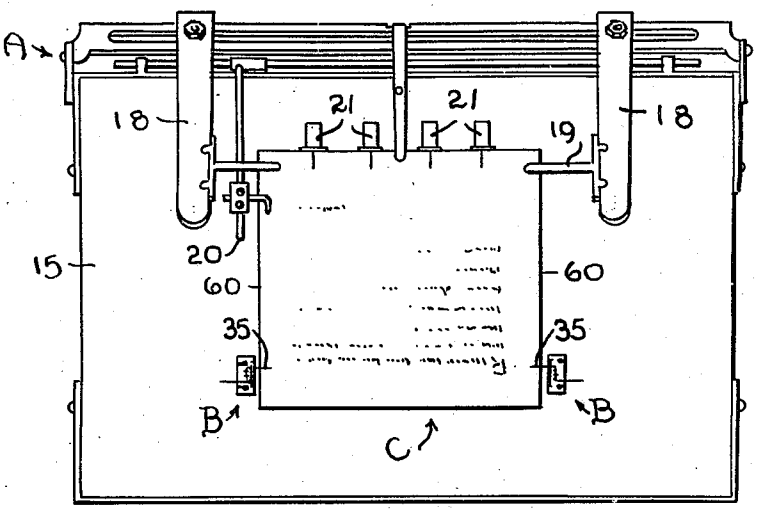
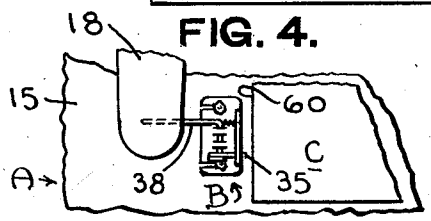


FIG. 4.



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FIG. 5.

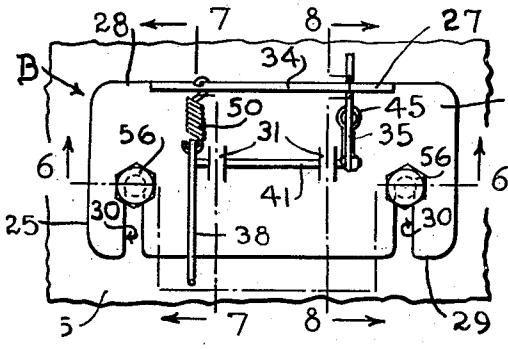


FIG. 6.

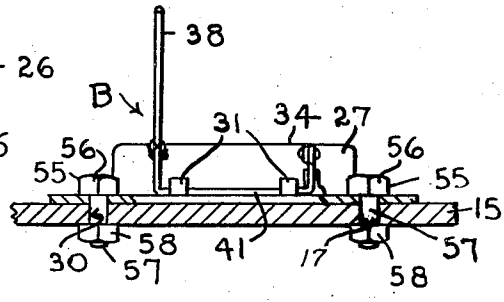


FIG. 7.

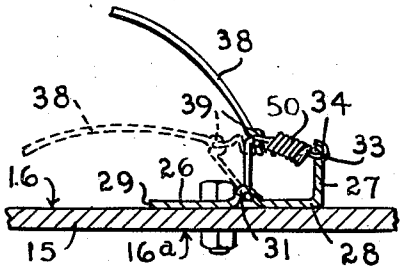


FIG. 8.

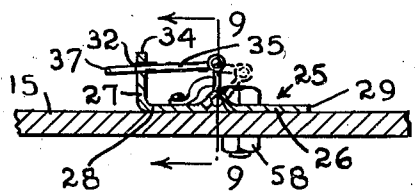


FIG. 10.

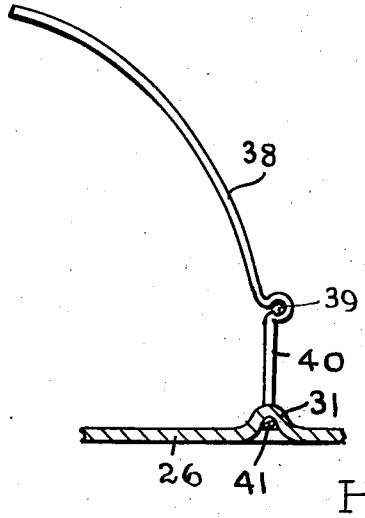


FIG. 9.

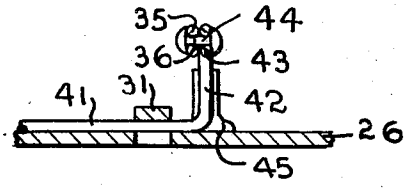
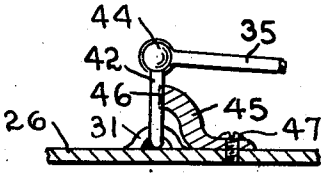


FIG. 11.



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UNITED STATES PATENT OFFICE

2,370,591

SHEET-RETAINING ATTACHMENT FOR PLATEN PRESSES

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Application May 6, 1943, Serial No. 485,899

4 Claims. (Cl. 101—408)

This invention relates to printing and more specifically to work-engaging members, adapted to prevent "flip-up" of the sheet after the printing impression is made.

An important object of the invention is to provide an attachment for the tympan of platen presses, either automatic or hand-fed, adapted to prevent raising of the printed sheet from the platen between the release of the grippers and until the platen has reached its downward limit of movement. Ordinarily, there is an arcuate movement of about 60 degrees in the last portion of the descent of the platen during which the grippers do not follow the platen and it is during this portion of descent that the printed sheets flip-up, a condition caused by inherent curliness of paper, rapid descent of the platen and, sometimes incidental air currents and vacuums.

In hand-feeding a press, much of this flip-up of the sheet can be obviated, but not wholly, and in automatic feeding, flipping often prevents the delivery arm to contact the sheet for its withdrawal and delivery to the printed stack.

Another important object is to provide an efficient but inexpensive attachment (requiring no alteration of conventional tympan other than providing two perforations therein for each attachment) which may be operated either by the grippers or by the furniture, as preferred, thus enabling one of two different means to actuate the attachment.

Other objects and advantages of the invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawings, and in which drawings—

Figure 1 is a plan view of two of the attachments with a sheet in position to be printed.

Figure 2 is a longitudinal section of a tympan and furniture, with the latter engaged in operating the attachments.

Figure 3 is a view similar to Figure 1 but showing the position of parts after the sheet has been printed.

Figure 4 is an enlarged fragmentary view showing gripper operation of the attachment, as distinguished from the furniture operation of Figures 1–3 inclusive.

Figure 5 is an enlarged top plan view of the attachment.

Figures 6, 7 and 8 are vertical sections substantially upon their respective lines of Figure 5.

Figure 9 is a vertical section substantially upon the line 9—9 of Figure 8.

Figure 10 is an elevation of a handle member and

Figure 11 an elevation of a portion of an arm and finger, and vertical section of a stop, employed in the operation of the novel attachment.

In the drawings wherein for the purpose of illustration is shown a preferred embodiment of the invention and wherein similar reference characters designate corresponding parts thruout the several views, the letter A may designate generally a platen printing press, B the novel attachments and C a sheet of material being operated upon.

The portion of platen printing press A shown is of conventional construction and includes a platen and associated tympan 15, having an upper sheet-supporting surface or face 16 and lower face 16a, and thru which, from face to face, are two pairs of spaced-apart perforations 17 which will be referred to later. The press also includes grippers 18, gripper fingers 19 attached thereto, a tympan gauge 20 and a suitable number of gauges or guides 21. There is also shown a portion of furniture 22.

As for the novel attachment B, the same includes a combined base and support 25, substantially L-shaped in vertical transverse section, as shown in Figure 8, having a flat horizontal base portion 26 and a flat vertical upright portion 27 at one end 28 of the base portion. This base and support 25 may comprise a sheet of suitable material formed into the L-shape.

Extending from the edge 29 of the base portion 26, inwardly toward the end 28 is one or more spaced-apart slots 30 to provide for adjustment in two directions of the attachment B. The base portion 26 may be provided, also, with a pair of spaced-apart bearings 31 which may be formed by slitting thru the portion 26 (forming two pairs of paralleling slits) and upsetting the material between each pair, to form eyes for a portion of the attachment later to be described.

The upright portion 27 may be provided with two perforations 32 and 33, each for a different purpose, to be described. These may be relatively close to the upper edge 34 of the portion 27 and spaced apart.

Means is provided adapted to project close to the platen 15 and beneath the sheet C (before the latter is impressed and while the platen is ascending), and adjacent an edge or opposite edges of the sheet C, to be moved from beneath the sheet as the sheet is being impressed, and to be moved to project over this edge or edges of the sheet and above and close to the sheet during

the time or period the platen is descending particularly after release of the sheet by the grippers 18. This means preferably comprises a member or finger 35, which may be a single length of suitable material, as heavy rigid wire, formed at one end with an eye 36 and with its opposite end 37 straight and adapted to project thru and to be slidable in the perforation 32, to extend from each face of the upright portion 27. This member 35 is adapted to be positioned substantially horizontally and to parallel the upper face 16.

Means is provided to either be engaged by the grippers 18 or furniture 22 and to be operatively connected with the member or finger 35 to move the same into the various positions heretofore described. This latter means preferably comprises a length of suitable material, as heavy, rigid wire, formed into a normally upwardly-extending, somewhat bowed lever 38, shown particularly in Figures 7 and 10, an eye 39 on the lever, near its lower end 40 a horizontal, substantially straight portion 41 extending across the upper face of the base portion 26 and thru the bearings 31 and terminating in an upwardly-extending arm 42 ending in an eye 43. Thru this eye 43 and the eye 36 in the member or finger 35 may extend a suitable pivot pin 44, pivotally coupling the two together. Of course when assembled, the member or finger 35 projects in one direction (toward and thru the upright portion 27 from the eye 43) and the lever 38 projects in the opposite direction, so that depression of the lever will retract the free end of the finger 35 toward the upright portion 27, as is now apparent.

Means for limiting movement of the finger or member 35 in one direction, i. e., outwardly of the upright portion 27, is provided, and may comprise a suitable stop 45, provided with a recessed or forked portion 46 engaging the arm 42 at that portion of the arm facing the upright portion 27. A suitable screw 47 may be provided to secure this stop 45 to the base portion 26, as in Figure 11.

Means for moving the lever 38 to a substantially upright position, after release by the furniture or grippers of the press A, may comprise a retractable coil spring 50, with one end extending thru the eye 39 of the lever 38 and the other end extending thru the perforation 33 of the upright portion 27.

Means for securing the attachment B to the press in an adjustable position may comprise a suitable number of bolts 55, with their heads 56 contacting the upper face of the base portion 27, their shanks 57 extending thru the slots 30 and perforation 17, with suitable nuts 58 for the ends of the shanks 57, projecting below the tympan 15, as shown particularly in Figure 6.

Ordinarily two attachments B are employed on each press A, and may be positioned as shown in Figures 1 and 3, close adjacent opposite end edges 60 of the sheet C, so that the fingers or members 35 will normally be within the vertical planes of these end edges 60, but when retracted, the fingers will clear the edges 60 and be outside these planes.

Positioned as shown in Figures 1 and 3, the lever 38 will be engaged by the furniture 22, but if the grippers 18 or their fingers 19 are moved, as is well known in the art, either may engage the lever 38 and move it to the dotted line position of Figure 7 during rising of the platen.

It is now apparent that a press feeder or the sheet feeding apparatus will place an unimpressed sheet in the position shown in Figure 1, with the sheet C resting upon the fingers 35, and this will be the position of the sheet C while the platen rises but when the furniture, grippers, or gripper fingers contact the levers 38 and depress them, the fingers 35 will be retracted as in Figures 2 and 5 and the sheet edges, supported upon the fingers, will contact the platen as in Figure 2.

As the furniture or grippers release the levers 38, the fingers 35 will again move to their initial position but, this time, they will be over the sheet C and close adjacent its upper face, and will remain in this position even after the grippers have released their hold upon the sheet. As a result, the sheet will not flip up, even when released by the grippers but the retaining effect of the fingers 35 will not prevent easy removal of the printed sheet and the fingers 35 are again in position to receive the edge portions of a fresh sheet.

Thus, it will be seen that the novel attachment takes over substantially the functions of the grippers and gripper fingers, particularly after the grippers and fingers have released the sheet, and the attachments will restrain the sheet against movement away from the platen during the whole period of its descent, yet the sheet is not retained so tightly that it cannot be removed when desired, and the attachments interfere in no way with the functions of the guides 21 and tympan gauge 20, nor with the making of the impression.

Various changes may be made to the form of the invention herein shown and described without departing from the spirit of the invention or scope of the following claims.

I claim:

1. In a sheet hold-down device for a platen printing press, adapted to retain a printed sheet against flip-up, after release by grippers and gripper fingers, during the entire time of the descent of the platen, a rigid reciprocating member, reciprocable in a plane substantially paralleling the sheet-supporting surface of said platen; a normally upwardly-extending arm pivotally connected with said member; means to engage, and be depressed by, a movable portion of said press, comprising a normally upright lever, operatively connected with said arm; an L-shaped combined horizontal base and upright support for said member, arm and lever, with said lever pivoted in said base and said member slidably carried by and normally projecting beyond said support; means limiting movement of said member in one direction; and means for moving said lever to an upright position after release of said lever by said movable portion of said press.

2. In a sheet supporting means and a hold-down device for a platen printing press, adapted to retain a printed sheet against flip-up, after release by grippers and gripper fingers, during the entire time of the descent of the platen, a movable member, including a rigid finger having a straight, forward end, substantially paralleling the sheet-supporting surface of said platen at all times and having a sheet-supporting upper surface, means to reciprocate said member, including an arm operatively connected with said member; and a normally upright lever, operatively connected with said arm and disposed within the downward path of travel of a movable portion of said press; an L-shaped combined base and support for said member, arm and lever, with said lever pivoted in said base and said member extending thru and beyond said support; means

limiting movement of said member in one direction; and means for moving said lever to an upright position after release of said lever by said movable position of said press.

3. In a sheet-supporting means and a hold-down device for a platen printing press, adapted to retain a printed sheet against flip-up, after release by grippers and gripper fingers, during the entire time of the descent of the platen, a movable member, including a rigid finger, having a straight forward end movable in a plane substantially paralleling the sheet-supporting surface of said platen and having a sheet supporting upper surface; means to reciprocate said finger, including a normally vertically disposed arm operatively connected with said member and comprising a normally upright lever, connected with said arm and disposed within the downward path of travel of a movable portion of said press; an L-shaped combined base and support for said member, arm and lever, with said lever pivoted in said base and said member extending thru said support with its forward end normally projecting beyond the outer face of said support; means limiting movement of said member in one direction so that said free end will be retracted, comprising a stop for said arm; and means for moving said lever to an upright position after release of said lever by said movable portion of said press.

4. On a sheet hold-down device for a platen printing press, adapted to retain a printed sheet against flip-up, after release by a gripper and gripper fingers, during the entire time of the descent of the platen, and then release said sheet, a base; an upright support wall extending from said base and having an outer face and a horizontally-disposed perforation, a rigid finger, with its longitudinal axis normal to the path of travel of said gripper, slidable through said perforation with its free end normally extending beyond said outer face, a normally upright arm pivotally connected to the other end of said finger, a straight horizontal portion secured at one end to the lower end of said arm, bearings for said portion carried by said base, a lever secured to the other end of said portion, extending upwardly from said base and disposed transversely to and in the path of travel of said gripper and means normally urging said lever upwardly, comprising a retraction spring, secured at one end to said upright support and at its other end to said base.

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